AMENDMENTS TO THE CLAIMS:

The following is a list of the current status of the claims:

1-42. (Canceled)

43.   (Currently Amended)   A computerized method of training a computer classification system which can be defined by _for_ a network comprising a number of n-tuple or Look Up Tables (LUTs), with each n-tuple or LUT comprising a number of rows corresponding to at least a subset of possible classes and further comprising, a number of columns being addressed by signals or elements of sampled training input data examples, each column being defined by a vector having cells with values, wherein

the column vector cell values are determined based on one or more training sets of input data examples for different classes so that at least part of the cells comprise or point to information based on the number of times the corresponding cell address is sampled from one or more sets of training input examples, said method being characterized in that

one or more output score functions are determined for evaluation of at least one output score value per class, and

one or more decision rules are determined to be used in combination with at least part of the obtained output scores to determine a winning class, wherein said determination of the output score functions and/or decision rules comprises:

determining output score functions based on the information of at least part of the determined column vector cell values, and adjusting at least part of the output score functions based on an information measure evaluation, and/or

determining decision rules based on the information of at least part of the determined column vector cell values, and adjusting at least part of the decision rules based on an information measure evaluation; and

~~training the computer classification system~~.

44.   (Previously Presented)   A method according to claim 43, wherein the output score functions are determined based on a validation set of input data examples.

45.   (Previously Presented)   A method according to claim 43, wherein the decision rules are determined based on a validation set of input data examples.

46.   (Previously Presented)   A method according to claim 44, wherein the decision rules are determined based on a validation set of input data examples.

47.   (Previously Presented)   A method according to claim 44, wherein determination of the output score functions is based on an information measure evaluating the performance on the validation example set.

48.   (Previously Presented)   A method according to claim 45, wherein determination of the decision rules is based on an information measure evaluating the performance on the validation example set.

49.   (Previously Presented)   A method according to claim 47, wherein the validation example set equals at least part of the training set and the information measure is based on a leave-one-out cross validation evaluation.

50.   (Previously Presented)   A method according to claim 48, wherein the validation example set equals at least part of the training set and the information measure is based on a leave-one-out cross validation evaluation.

51.   (Previously Presented)   A method according to claim 44, wherein the validation set comprises at least part of the training set(s) of input data examples.

52.   (Previously Presented)   A method according to claim 45, wherein the validation set comprises at least part of the training set(s) of input data examples.

53.　(Previously Presented)　A method according to claim 43, wherein the output score functions are determined by a set of parameter values.

54.　(Previously Presented)　A method according to claim 43, wherein determination of the output score functions comprises initializing the output score functions.

55.　(Previously Presented)　A method according to claim 54, wherein the initialization of the output score functions comprises determining a number of set-up parameters.

56.　(Previously Presented)　A method according to claim 54, wherein the initialization of the output score functions comprises setting all output score functions to a predetermined mapping function.

57.　(Previously Presented)　A method according to claim 43, wherein determination of the decision rules comprises initializing the decision rules.

58.　(Previously Presented)　A method according to claim 57, wherein the initialization of the decision rules comprises setting the rules to a predetermined decision scheme.

59.   (Previously Presented)   A method according to claim 55, wherein the adjustment comprises changing the values of the set-up parameters.

60.   (Previously Presented)   A method according to claim 43, wherein the determination of the column vector cell values comprises the training steps of

a)   applying a training input data example of a known class to the classification network, thereby addressing one or more column vectors,

b)   incrementing, preferably by one, the value or vote of the cells of the addressed column vector(s) corresponding to the row(s) of the known class, and

c)   repeating steps a)-b) until all training examples have been applied to the network.

61.   (Previously Presented)   A method according to claim 43, wherein the adjustment process comprises the steps of

determining a global quality value based on at least part of the column vector cell values,

determining if the global quality value fulfils a required quality criterion, and

adjusting at least part of the output score functions until the global quality criterion is fulfilled.

62.   (Previously Presented)   A method according to claim 61, wherein the global quality value is defined as functions of at least part of the column cells.

63.   (Previously Presented)   A method according to claim 61, wherein the adjustment iteration process is stopped if the quality criterion is not fulfilled after a given number of iterations.

64.   (Previously Presented)   A method according to claim 44, wherein the adjustment process comprises the steps of

a)   selecting an input example from the validation set(s),

b)   determining a local quality value corresponding to the sampled validation input example, the local quality value being a function of at least part of the addressed column cell values,

c)   determining if the local quality value fulfils required local quality criterion, if not,

adjusting one or more of the output score functions if the local quality criterion is not fulfilled,

d)   selecting a new input example from a predetermined number of examples of the validation set(s),

e)   repeating the local quality test steps b)-d) for all the predetermined validation input examples,

f)   determining a global quality value based on at least part of the
column vectors being addressed during the local quality test,

g)   determining if the global quality value fulfils a required global
quality criterion, and

h)   repeating steps a)-g) until the global quality criterion is fulfilled.

65.   (Previously Presented)   A method according to claim 64, wherein
steps b)-d) are carried out for all examples of the validation set(s).

66.   (Previously Presented)   A method according to claim 64, wherein
the local and/or global quality value is defined as functions of at least part of
the column cells.

67.   (Previously Presented)   A method according to claim 64, wherein
the adjustment iteration process is stopped if the quality criterion is not
fulfilled after a given number of iterations.

68.   (Previously Presented)   A method according to claim 43, wherein
the adjustment process comprises the steps of

determining a global quality value based on at least part of the column
vector cell values,

determining if the global quality value fulfils a required quality criterion,
and

adjusting at least part of the decision rules until the global quality criterion is fulfilled.

69.   (Previously Presented)   A method according to claim 68, wherein the global quality value is defined as functions of at least part of the column cells.

70.   (Previously Presented)   A method according to claim 68, wherein the adjustment iteration process is stopped if the quality criterion is not fulfilled after a given number of iterations.

71.   (Previously Presented)   A method according to claim 45, wherein the adjustment process comprises the steps of

a)   selecting an input example from the validation set(s),

b)   determining a local quality value corresponding to the sampled validation input example, the local quality value being a function of at least part of the addressed column cell values,

c)   determining if the local quality value fulfils required local quality criterion, if not,

adjusting one or more of the decision rules if the local quality criterion is not fulfilled,

d)   selecting a new input example from a predetermined number of examples of the validation set(s),

e)   repeating the local quality test steps b)-d) for all the predetermined

validation input examples,

f)   determining a global quality value based on at least part of the

column vectors being addressed during the local quality test,

g)   determining if the global quality value fulfils a required global

quality criterion, and

h)   repeating steps a)-g) until the global quality criterion is fulfilled.

72.   (Previously Presented)   A method according to claim 71, wherein

steps b)-d) are carried out for all examples of the validation set(s).

73.   (Previously Presented)   A method according to claim 71, wherein

the local and/or global quality value is defined as functions of at least part of

the column cells.

74.   (Previously Presented)   A method according to claim 71, wherein

the adjustment iteration process is stopped if the quality criterion is not

fulfilled after a given number of iterations.

75.   (Previously Presented)   A method according to claim 43, wherein

the adjustment process comprises the steps of

determining a global quality value based on at least part of the column

vector cell values,

determining if the global quality value fulfils a required quality criterion, and

adjusting at least part of the output score functions and part of the decision rules until the global quality criterion is fulfilled.

76.   (Previously Presented)   A method according to claim 75, wherein the global quality value is defined as functions of at least part of the column cells.

77.   (Previously Presented)   A method according to claim 75, wherein the adjustment iteration process is stopped if the quality criterion is not fulfilled after a given number of iterations.

78.   (Previously Presented)   A method according to claim 46, wherein the adjustment process comprises the steps of

a)   selecting an input example from the validation set(s),

b)   determining a local quality value corresponding to the sampled validation input example, the local quality value being a function of at least part of the addressed column cell values,

c)   determining if the local quality value fulfils a required local quality criterion, if not,

adjusting one or more of the output score functions and the decision rules if the local quality criterion is not fulfilled,

d)   selecting a new input example from a predetermined number of examples of the validation set(s),

e)   repeating the local quality test steps b)-d) for all the predetermined validation input examples,

f)   determining a global quality value based on at least part of the column vectors being addressed during the local quality test,

g)   determining if the global quality value fulfils a required global quality criterion, and

h)   repeating steps a)-g) until the global quality criterion is fulfilled.

79.   (Previously Presented)   A method according to claim 78, wherein steps b)-d) are carried out for all examples of the validation set(s).

80.   (Previously Presented)   A method according to claim 78, wherein the local and/or global quality value is defined as functions of at least part of the column cells.

81.   (Previously Presented)   A method according to claim 78, wherein the adjustment iteration process is stopped if the quality criterion is not fulfilled after a given number of iterations.

82.   (Currently Amended)   A method of classifying input data examples into at least one of a plurality of classes using a computer

classification ~~system configured~~ method according to claim 43, whereby

column cell values for each n-tuple or LUT and output score functions and/or

decision rules are determined using one or more training or validation sets of

input data examples, said method comprising

a)   applying an input data example to be classified to the configured

classification network thereby addressing column vectors in the set of n-tuples

or LUTs,

b)   selecting a set of classes which are to be compared using a given

set of output score functions and decision rules thereby addressing specific

rows in the set of n-tuples or LUTs,

c)   determining output score values as a function of the column vector

cells and using the determined output score functions,

d)   comparing the calculated output values using the determined

decision rules, and

e)   selecting the class or classes that win(s) according to

the decision rules.

83.   (Currently Amended)   A system for training a computer

classification system which can be defined by a network comprising a stored

number of n-tuples or Look Up Tables (LUTs), with each n-tuple or LUT

comprising a number of rows corresponding to at least a subset of possible

classes and further comprising a number of columns being addressed by

signals or elements of sampled training input data examples, each column

being defined by a vector having cells with values, said system comprising

a)   input means for receiving training input data examples of known

classes,

b)   means for sampling the received input data examples and

addressing column vectors in the stored set of n-tuples or LUTs,

c)   means for addressing specific rows in the set of n-tuples or LUTs,

said rows corresponding to a known class,

d)   storage means for storing determined n-tuples or LUTs,

e)   means for determining column vector cell values so as to comprise

or point to information based on the number of times the corresponding cell

address is sampled from the training set(s) of input examples, characterized in

that said system further comprises

f)   means for determining one or more output score functions and one

or more decision rules, wherein said output score functions and decision rules

determining means is adapted for

determining said output score functions based on the information

of at least part of the determined column vector cell values and a validation set

of input data examples of known classes,

determining said decision rules based on the information of at

least part of the determined column vector cell values and a validation set of

input data examples of known classes, and wherein the means for determining

the output score functions and/or decision rules comprises

means for initializing one or more sets of output score functions

and/or decision rules, and

means for adjusting output score functions and decision rules by

use of at least part of the validation set of input examples.

84.   (Previously Presented)   A system according to claim 83, wherein

the means for determining the output score functions is adapted to determine

such functions from a family of output score functions determined by a set of

parameter values.

85.   (Previously Presented)   A system according to claim 83, wherein

said validation set comprises at least part of the training set(s) used for

determining the column cell values.

86.   (Previously Presented)   A system according to claim 83, wherein

the means for determining the column vector cell values is adapted to

determine these values as a function of the number of times the corresponding

cell address is sampled from the set(s) of training input examples.

87.   (Previously Presented)   A system according to claim 83, wherein,

when a training input data example belonging to a known class is applied to

the classification network thereby addressing one or more column vectors, the

means for determining the column vector cell values is adapted to increment

the value or vote of the cells of the addressed column vector(s) corresponding to

the row(s) of the known class, said value preferably being incremented by one.

88.   (Previously Presented)   A system according to claim 83, wherein

the means for adjusting output score functions is adapted to

determine a global quality value based on at least part of column

vector cell values,

determine if the global quality value fulfils a required global quality

criterion, and

adjust at least part of the output score functions until the global

quality criterion is fulfilled.

89.   (Previously Presented)   A system according to claim 88, wherein

the means for adjusting the output score functions and decision rules is

further adapted to stop the iteration process if the global quality criterion is not

fulfilled after a given number of iterations.

90.   (Previously Presented)   A system according to claim 83, wherein

the means for adjusting output score functions and decision rules is adapted to

a)   determine a local quality value corresponding to a sampled

validation input example, the local quality value being a function of at least

part of the addressed vector cell values,

b)   determine if the local quality value fulfils a required local quality
criterion,

c)   adjust one or more of the output score functions if the local quality
criterion is not fulfilled,

d)   repeat the local quality test for a predetermined number of training
input examples,

e)   determine a global quality value based on at least part of the
column vectors being addressed during the local quality test,

f)   determine if the global quality value fulfils a required global quality
criterion, and

g)   repeat the local and the global quality test until the global quality
criterion is fulfilled.

91.   (Previously Presented)   A system according to claim 90, wherein
the means for adjusting the output score functions and decision rules is
further adapted to stop the iteration process if the global quality criterion is not
fulfilled after a given number of iterations.

92.   (Previously Presented)   A system according to claim 83, wherein
the means for adjusting decision rules is adapted to

determine a global quality value based on at least part of column vector
cell values,

determine if the global quality value fulfils a required global quality

criterion, and

adjust at least part of the decision rules until the global quality criterion

is fulfilled.

93.   (Previously Presented)   A system according to claim 92, wherein

the means for adjusting the output score functions and decision rules is

further adapted to stop the iteration process if the global quality criterion is not

fulfilled after a given number of iterations.

94.   (Previously Presented)   A system according to claim 83, wherein

the means for adjusting output score functions and decision rules is adapted to

a)   determine a local quality value corresponding to a sampled

validation input example, the local quality value being a function of at least

part of the addressed vector cell values,

b)   determine if the local quality value fulfils a required local quality

criterion,

c)   adjust one or more of the decision rules if the local quality criterion

is not fulfilled,

d)   repeat the local quality test for a predetermined number of training

input examples,

e)   determine a global quality value based on at least part of the

column vectors being addressed during the local quality test,

f)   determine if the global quality value fulfils a required global quality criterion, and

g)   repeat the local and the global quality test until the global quality criterion is fulfilled.

95.   (Previously Presented)   A system according to claim 94, wherein the means for adjusting the output score functions and decision rules is further adapted to stop the iteration process if the global quality criterion is not fulfilled after a given number of iterations.

96.   (Previously Presented)   A system according to claim 83, wherein the means for adjusting decision rules is adapted to

determine a global quality value based on at least part of column vector cell values,

determine if the global quality value fulfils a required global quality criterion, and

adjust at least part of the output score functions and decision rules until the global quality criterion is fulfilled.

97.   (Previously Presented)   A system according to claim 96, wherein the means for adjusting the output score functions and decision rules is further adapted to stop the iteration process if the global quality criterion is not fulfilled after a given number of iterations.

98.   (Previously Presented)   A system according to claim 83, wherein the means for adjusting output score functions and decision rules is adapted to

a)   determine a local quality value corresponding to a sampled validation input example, the local quality value being a function of at least part of the addressed vector cell values,

b)   determine if the local quality value fulfils a required local quality criterion,

c)   adjust one or more of the output score functions and decision rules if the local quality criterion is not fulfilled,

d)   repeat the local quality test for a predetermined number of training input examples,

e)   determine a global quality value based on at least part of the column vectors being addressed during the local quality test,

f)   determine if the global quality value fulfils a required global quality criterion, and

g)   repeat the local and the global quality test until the global quality criterion is fulfilled.

99.   (Previously Presented)   A system according to claim 98, wherein the means for adjusting the output score functions and decision rules is further adapted to stop the iteration process if the global quality criterion is not fulfilled after a given number of iterations.

100. (Previously Presented)   A system according to claim 83, wherein the means for storing n-tuples or LUTs comprises means for storing adjusted output score functions and decision rules and separate means for storing best so far output score functions and decision rules or best so far classification system configuration values.

101. (Previously Presented)   A system according to claim 100, wherein the means for adjusting the output score functions and decision rules is further adapted to replace previously separately stored best so far output score functions and decision rules with obtained adjusted output score functions and decision rules if the determined global quality value is closer to fulfill the global quality criterion then the global quality value corresponding to previously separately stored best so far output score functions and decision rules.

102. (Previously Presented)   A system for classifying input data examples of unknown classes into at least one of a plurality of classes, said system comprising:

storage means for storing a number or set of n-tuples or Look Up Tables (LUTs) with each n-tuple or LUT comprising a number of rows corresponding to at least a subset of the number of possible classes and further comprising a number of column vectors, each column vector being

addressed by signals or elements of a sampled input data example, and each

column vector having cell values being determined during a training process

based on one or more sets of training input data examples,

storage means for storing one or more output score functions and/or one

or more decision rules, each output score function and/or decision rule being

determined during a training or validation process based on one or more sets of

validation input data examples, said system further comprising:

input means for receiving an input data example to be

classified, means for sampling the received input data example and addressing

column vectors in the stored set of n-tuples or LUTs,

means for addressing specific rows in the set of n-tuples or

LUTs, said rows corresponding to a specific class,

means for determining output score values using the stored

output score functions and at least part of the stored column vector values,

and

means for determining a winning class or classes based on

the output score values and stored decision rules.